

Final Paper Submission for Applied Economics

# **Do Non-Targeted Cash Transfers Impact Female Autonomy and Mental Health?**

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## **Abstract**

Evaluating the impact of multipurpose cash (MPC) transfers has emerged into a rising topic in the field of economic development. Although these transfers are widely used in the Syrian refugee crisis response, there still remains little to no evidence on outcomes which the transfer is not directed towards. Using household survey data collected on July / August 2019, I study the effect of a 12-month MPC assistance cycle on the intra-household decision making and mental health of economically vulnerable Syrian refugee females in Lebanon. Using a sharp regression discontinuity design, I find that the cash transfer has insignificant and mixed outcomes on individual decisions with a non-significant but positive impact on female autonomy. In addition, I find that the impact of MPC is consistent with the literature of significantly improving the mental health.

# 1 Introduction

Cash transfers emerged as a promising approach to reduce poverty in the late 1990s. Fast forward to 2016, the Grand Bargain at the World Humanitarian Summit took increasing the usage of cash programs as a major commitment to be made by organizations and humanitarian donors (Bargain, 2016). These assistance programs have been designed to alleviate poverty, stimulate behavioural change, and human capital investment. More specifically, the transfers act as supportive means for people affected by disasters and conflicts to generate an income and meet their basic needs such as food and shelter.

There is evidence with reference to cash transfers, particularly multipurpose cash (MPC) assistance programs, stating they provide more choice and dignity for affected people and improve economies. However, despite substantial evidence from development contexts (Harvey and Pavanello, 2018; Doocy and Tappis, 2020), there is little attestation on how MPC transfers affect intra-household decision making or female empowerment and mental health.

Most papers exploring the impact on decision making have investigated cash transfers which are both conditional on beneficiaries' actions and female targeted. Qualitatively, Adato and Roopnaraine (2010) find an increase of women's decision-making power on certain issues within the household. Quantitatively, there is limited and mixed evidence suggesting either effects are insignificant and not supported or positively increasing control over some decisions (Attanasio and Lechene, 2010; De Brauw *et al.*, 2014; Hidrobo *et al.*, 2012). In this paper, I contribute to this literature by providing a different angle on intra-household effects where the cash transfer is unconditional; i.e doesn't require anything in return, and is targeted towards the household as a whole.

A more studied outcome is the effect of cash transfers on mental health. Although the impact may also vary by social and economic context, culture, design, and conditionality of the program (Zimmerman *et al.*, 2021), many papers have found significantly positive benefits for mental health. Papers from around the

world with different types of cash transfer programs have consistently found improvement in mental health of beneficiaries (Baird *et al.*, 2013; Gibson *et al.*, 2020; Kilburn *et al.*, 2016; Ohrnberger *et al.*, 2020; Simanainen and Tuulio-Henriksson, 2021). I contribute to this literature by further validating the positive results in the Syrian refugees settings which, to the best of my knowledge, has not been studied before.

Both outcomes provide much needed evidence to inform use of cash transfer programs in both the current and future humanitarian responses. In this case, this paper also contributes to the set of academic publications which have been clearing some grey literature on impact evaluations in cases where most have been conducted either internally or by commissioned external consultants.

For identification, I use data from a household survey collected by Salti *et al.* (2022) on July/August 2019 in Lebanon. The data includes demographic and socioeconomic information on Syrian refugee household beneficiaries for the November 2018 MPC cycle which lasts for 12 months. The assignment to treatment is determined by a proxy means testing (PMT) score that has ranked households from most to least vulnerable according to predicted household expenditure. I use a sharp regression discontinuity design where households on either side of the cut-off are arguably similar and any difference in outcomes can be attributed to the causal impact of MPC.

The results I find are aligned with the literature. The MPC transfer to vulnerable Syrian refugee households has mixed and insignificant impacts on individual decisions such as whether the female should work to earn money or not and the acceptable wage, what to prepare for daily meals, visiting family/relatives or friends, major and minor household expenditures, whether or not to use family planning, the children's education, and where to obtain health care/advice. As for female empowerment, I create an index using the individual decisions to find a positive but insignificant impact of MPC. In addition, I explore the heterogeneity of benefiting from the cash transfer and conclude that there is no significant

impact on female empowerment unless there exists some flexibility in the ability to take the decision.

The mental health outcome is based on three different methods of evaluating the Mental Health Inventory presented by the literature. When I use the binary cutoff, I find that MPC has no effect on pushing the beneficiaries from bad to good mental health. However, when I estimate the impact using a more precise scaled model, I find that beneficiaries linearly achieve better mental health.

The analysis has some important limitations. First, all the outcomes are self-reported and may suffer a social desirability bias leading to respondents not disclosing information accurately. Second, the results should be interpreted with caution because I study Syrian refugee female respondents only and answers may differ if they were given by a male or cross-sectionally between different communities and cultures. Lastly, because conditions in Lebanon are different than what they were in 2018, conclusions on the overall impact of cash is taken attentively.

This paper is organized as follows: Section 2 provides a background on the cash transfer program which is being evaluated. Section 3 identifies the data set and outcomes of interest. Section 4 indicates and validates the empirical methodology used to answer the research question. Section 5 presents the key findings. Section 6 runs robustness checks on the significant impact of mental health. Section 7 discusses the limitations while Section 8 concludes.

## **2 Overview of the cash transfer program**

The Syrian civil war's unrest has been ongoing for a decade now. Nine out of ten Syrian refugee households residing in Lebanon live in extreme poverty (UNHCR, 2021). These households continue to face daily hardships of war-driven displacement which include access to basic needs and services, on-going risks of violence and exploitation, uncertainty about the future, and most importantly, poverty.

Consequently, the World Food Programme (WFP), United Nations High Com-

missioner for Refugees (UNHCR), and non-governmental organisations (NGO) established a MPC Program in November 2017 for the most economically vulnerable Syrian refugee households. The objective was to aid Syrian refugees and help improve their livelihood and well-being.

**Eligibility:** The program is based on a proxy means testing (PMT) formula which provides a score to predict annual household expenditures using a set of socio-demographic characteristics from the UNHCR registration database. It is aimed to reach all households whose score is below the survival minimum expenditure basket of 87 USD per person per month.

**Administration:** The PMT formula is recalculated yearly using new socio-demographic data collected from the yearly "Vulnerability Assessment of Syrian Refugees in Lebanon" survey (Moussa *et al.*, 2022). Assistance is offered until the allocated funding is fully disbursed leading to not all eligible households receiving the aid and a quasi-natural experiment. A geographic bottom-up approach is used until the financial limit is reached.

As a result, there is an arbitrary cut-off score on the PMT around the last households included. Households' observable and unobservable characteristics on either side of the cut-off are arguably similar. Therefore, the only difference would be benefiting from the MPC and any difference in the outcomes between households on either side of the cut-off is attributable to the MPC (Imbens and Lemieux, 2008).

**Duration and benefit:** Over a 12-month cycle, households receive a monthly unconditional and unrestricted direct cash transfer of approximately 175 USD per household per month. The transfer is provided in the form of direct cash given to beneficiaries with no pre- or post-conditions or requirements. In other words, the Syrian refugee households have full independence and autonomy on deciding where and how to spend the money.

**Usage:** Eligible households could withdraw the money at any "Banque Libano-Française" automated teller machine (ATM). The aid is targeted to the household

as a whole. Anyone who has the card and pin could withdraw the cash. As previously mentioned, the money can be spent on whatever the household desires e.g food, medicine, water, shelter, clothing, or even leisure.

### 3 Data and descriptive statistics

#### 3.1 Sample summary

My analysis relies on data from a household survey collected by Salti *et al.* (2022) in Lebanon. The data set consists of household and individual level observations collected over two waves, one in February/March 2019 and another in July/August 2019.

For the purpose of the conducted survey, a household was defined as a group of people who live in the same house and share in financial activities like food and budgeting for more than 6 months. For example, it is possible to have two ‘households’ living under the same roof if they are independent of each others’ financial matters. In my case, the outcomes I look at are asked on a household level where respondents answer personally, thus making my analysis at an individual level.

Although the data collection process was not carried in a panel-data structure, a similar questionnaire was used for both waves. The questionnaire details major aspects of Syrian refugees’ lives namely: expenditures, food security, education, employment, health, and decision-making, housing, water, sanitation, and hygiene. Importantly, it covers Mount Lebanon, North Lebanon, and Bekaa governorates which composed 85% of all Syrian refugees residing in Lebanon and registered in the UNHCR database during the study period (Moussa *et al.*, 2022).

The sampling followed a standard probability proportional to size to maintain the representativeness of the Syrian refugees population in the three regions and within the MPC eligibility cutoff scores (Moussa *et al.*, 2022). I focus my analysis

**Table 1: Summary statistics**

	All	Treated	Control
PMT score (USD)	59.31 (6.15)	54.00 (3.67)	63.02 (4.62)
Treatment (%)	0.41 (0.49)	1.00 (0.00)	0.00 (0.00)
<i>HoH socio-economic indicators</i>			
HoH age (years)	40.16 (10.20)	40.20 (9.21)	40.13 (10.84)
HoH has intermediate education (%)	0.28 (0.45)	0.26 (0.44)	0.30 (0.46)
Female HoH (%)	0.24 (0.43)	0.25 (0.43)	0.23 (0.42)
Married HoH (%)	0.82 (0.38)	0.82 (0.38)	0.82 (0.38)
<i>Household indicators</i>			
Arrival year (Year)	2,013.17 (1.68)	2,013.15 (1.81)	2,013.19 (1.59)
Household size (ind)	5.72 (1.80)	6.21 (1.75)	5.37 (1.74)
Member <5 (%)	0.20 (0.20)	0.20 (0.19)	0.20 (0.20)
Dependence ratio (ind)	1.46 (0.94)	1.64 (0.99)	1.33 (0.87)
Member with disability (%)	0.03 (0.09)	0.02 (0.07)	0.03 (0.10)
Members who never attended school (%)	0.35 (0.27)	0.35 (0.26)	0.35 (0.27)
<i>Geographic indicators</i>			
Living in ITS (%)	0.39 (0.49)	0.45 (0.50)	0.35 (0.48)
Bekaa (%)	0.65 (0.48)	0.66 (0.47)	0.64 (0.48)
North (%)	0.23 (0.42)	0.26 (0.44)	0.22 (0.41)
Mount Lebanon (%)	0.12 (0.32)	0.08 (0.28)	0.14 (0.34)

*Note:* PMT is an acronym for proxy means testing, HoH for head of household, and ITS for informal tented settlements. Standard deviation in the parenthesis.

on the beneficiaries of the 2018 cycle which spanned from November 2018 to October 2019. The program has an almost perfect compliance (Appendix Figure 1A) with the MPC cutoff score being \$57.1, \$57.2, \$66.1 for Bekaa, North, and Mount Lebanon respectively (Chaaban *et al.*, 2020).

Mental health questions were only asked in the July/August 2019 wave and the decision making questions were only asked to female respondents. Thus, I focus my analysis on the subset of second wave and female respondents with their corresponding households because of the way the survey has been designed. As found in Table 1, this yields to a final analytic sample of 3,132 households with female respondents.

### **3.2 Decision making outcomes**

The first set of outcomes highlight negotiations that occur between the members of the household to arrive at decisions regarding the household unit. Cash transfers are hypothesized to have less tangible impacts on female's empowerment and household decision making processes (Rabb and Chang, 2021). Given the subset of taking female respondents only, these outcomes could possibly highlight female empowerment from the perspective of an understudied region.

The questionnaire asks who, in the past 6 months, generally had the last word and to what extent did the respondent feel they could make their own personal decisions regarding the following aspects of household life: (1) whether the female should work to earn money or not and the acceptable wage, (2) what to prepare for daily meals, (3) visiting family/relatives or friends, (4) major and (5) minor household expenditures (6) whether or not to use family planning (contraceptives/birth control) to space or limit births, (7) the children's education, (8) and where to obtain health care/advice. Respondents could choose answer options between either mainly husband, mainly wife, jointly, husband/male with another person, wife/female with another person, or someone outside the household/other. For the purpose of the analysis, observations were turned missing



when the decision was not applicable, when the respondents said they don't know, or when they refused to answer.

My analysis looks into the impact of the MPC transfer in three different ways. The first two are dummy variables. One takes on the value one if the decision is made mainly by the woman or jointly by wife or female and they are capable of making a decision to a medium or high extent. The other dummy variable represents any level of female autonomy such that it takes the value one for decisions take with any female participating.

Lastly, I construct a female empowerment index using Kling *et al.*'s (2007) approach. This index is computed by an average z-score from redefining the variables so that the larger values represent more female autonomy. If the respondent has answered to at least one of the questions, then the missing values of the other questions are assigned as the mean of the corresponding group they belong to. The index is therefore interpreted as the average of the differences between treatment and control results for the separate decisions taken scaled to standard deviation units.

### **3.3 Mental health outcomes**

The mental health outcome is based on a set of five questions from the questionnaire. These questions are validated by the Mental Health Inventory (MHI-5) and based on a six point scale from all the time to never. Note that these questions could also be answered by choosing to refuse to answer or "don't know" which are turned into missing observations for the purpose of the analysis.

MHI-5 is derived from a longer questionnaire for measuring health-related quality of life called Short Form Health Survey (SF-36). SF-36 is known to be a good predictor of anxiety, depression, behavioural control and general distress (Pfoh *et al.*, 2016). The MHI-5 asks how much in the past 6 months did the respondent feel that they are a happy person, calm and reassured, very angry, upset, and depressed. Three of the questions are aimed at depressive symptoms and

psychological well-being, while the remaining two questions measure symptoms of anxiety.

While there is no universal cutoff, I present the mental health outcomes in three different manners deduced from the literature. First, I sum the scores from each question and then use 19 as a cut-off point indicating poor health (Groh *et al.*, 2012; Yamazaki *et al.*, 2005). Second, I use the summed score and normalize it to a 100-point continuous scale where a higher MHI-5 score is correlated with better mental health (Gresenz *et al.*, 2001). Lastly, I take the 100-point continuous variable and create a dummy variable with a 52 cut-off point to represent those below the score as having mental health problems (Kiely *et al.*, 2015; Simanainen and Tuulio-Henriksson, 2021).

## 4 Empirical approach

Because the program has a compliance very close to perfect, I use a sharp regression discontinuity (RD) design to evaluate the causal effect of MPC on mental health and the different aspects of decision making in Syrian refugee households. The assignment to treatment is determined by the MPC score that has ranked households from most to least vulnerable. The same criteria is used in all regions to calculate the score where information is unpublicized and updated yearly. Hence, households on either side of the cut-off are arguably similar and any difference in outcomes can be attributed to the causal impact of MPC.

### 4.1 Regression model

Consider the regression model to exploit the discontinuity in benefiting from MPC at the PMT score cutoff:

$$Y_{ix} = \alpha + \tau D_{ix} + \delta(X - c) + \epsilon_{ic} \quad (1)$$

where  $Y_{ix}$  is an outcome variable for the female respondent  $i$  with an MPC

score  $X$ .  $D_{ix}$  is the treatment dummy reporting whether the household benefits from the cash transfer or not and  $\tau$  captures the treatment effect.  $\delta(X - c)$  is a smooth centered at 0 function employed with a linear specification of the 2018 MPC score  $X$ . This running variable has \$57.1, \$57.2, \$66.1 as cutoff scores for Bekaa, North, and Mount Lebanon respectively (Chaaban *et al.*, 2020). Therefore,  $D_{ix}$  is defined as:

$$D_{ix} = \begin{cases} 0 & \text{if } c \geq \text{region specific cutoff,} \\ 1 & \text{if } c < \text{region specific cutoff.} \end{cases}$$

I use a uniform (or rectangular) kernel function which assigns equal weights to all observations falling within the bandwidth of approximately 2\$ from the cutoff selected by the optimal Mean Square Error bandwidth selector for the RD treatment effect estimator. In addition, I apply the weights which were extracted from the UNHCR registry of Syrian refugees in Lebanon at the time of the data collection is applied to all analyses (Moussa *et al.*, 2022). The results provided by this design are interpreted as an estimate of the local random assignment for the subpopulation of female Syrian refugee respondents around the MPC cut-off point.

## 4.2 Identifying assumptions and validity

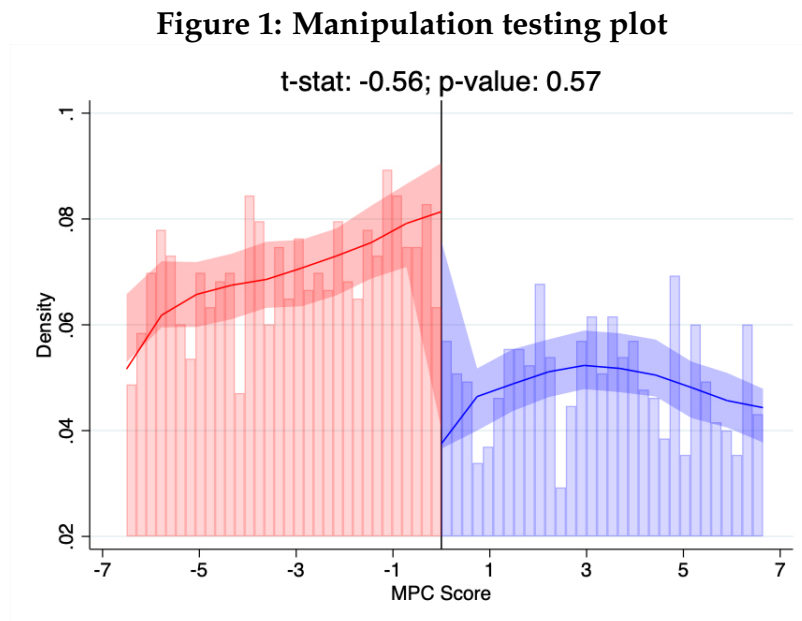
The identifying assumptions for a sharp RD design are continuity at the MPC score cutoff, no manipulation in the neighborhood of this discontinuity, and excludability.

In principle, there shouldn't be any jumps in the eligibility of benefiting from MPC at the cutoff point. Households close to the cutoff point are very similar, on average, in observed and unobserved characteristics. The similarity between unobserved characteristics is assumed and plausible for the households very close to the cutoff point because of the methodology used to calculate the MPC score. I find the density of the MPC score continuous and check for similarities between

observed characteristics. The balance checks on the 22 baseline covariates are also continuous around the threshold as seen in Appendix Section D thus validating the first assumption.

In addition, there shouldn't be any other sign of individuals effectively manipulating their MPC score in order to affect their position around the cutoff and increase their chances of being included in the program. Qualitatively, this can be argued by the fact that the information of what variables are use is unpublicized and the PMT calculation is updated yearly.

Figuratively, I show a histogram of the distribution of the MPC score around the cutoff. As seen in Appendix Figure 3A, its evident that there is no bunching up of households close to the threshold which further supports against the possibility of manipulation.



Quantitatively, I run a McCrary (2008) test which is a weighted local linear regression with a uniform kernel of the fraction of female respondents below and above the discontinuity point (Figure 1). The test consists of checking whether the MPC score's density function has any discontinuities around the cutoff point. I find that I cannot reject the null that the density of the MPC score is the same just below and just above the discontinuity point which interpreted as no evidence of

a discontinuity. Although the test passes, there is a limitation that it cannot detect endogenous manipulation based on unobservable characteristics or swaps across the discontinuity which are assumed as absent.

Finally, the excludability assumption holds because there is no known relevant things changing at the MPC score cut-off. Hence, the female respondents with household MPC scores just below the cutoff (who receive MPC) are good comparisons to those just above the cutoff (who don't receive MPC).

## 5 Key findings

### 5.1 Decision making

The program did not have a significant impact on female autonomy and decision making. Results for females making sole or joint decisions to a high or medium extent were mixed for the multiple decision fields and were largely insignificant and inconclusive as found in the Appendix Tables 2B and 3B. Similar non-significant results were found for having any level of autonomy versus none as seen in Appendix Tables 4B and 5b.

Although no data was collected on who manages the household income and expenditures, the results of the empowerment index show positive directions for female empowerment as found in Table 2. Interpreting the average of the normalized Z-scores, the linear RD finds an insignificant 0.25 standard deviation increase in the empowerment index. The quadratic functional form finds an increase of 0.38 standard deviations in the empowerment index which is significant at the five percent level; or ten percent when correcting for the bias and not controlling for observable characteristics.

Intuitively, because the cash transfer is not targeted to females, we would not expect any significant change in their empowerment. However, the presented results demonstrate that it is possible to safely reject any negative direction of the impact of cash transfers on female empowerment.

**Table 2: Regression discontinuity estimates of the impact of MPC on the female empowerment index**

	(1)	(2)
<i>Linear</i>		
Conventional	0.251 (0.187)	0.326 (0.277)
Bias-corrected	0.260 (0.187)	0.324 (0.277)
<i>Quadratic</i>		
Conventional	0.375** (0.182)	0.143 (0.389)
Bias-corrected	0.345* (0.182)	0.156 (0.389)
<i>Cubic</i>		
Conventional	0.172 (0.227)	0.0749 (0.549)
Bias-corrected	0.226 (0.227)	0.106 (0.549)
Covariates	No	Yes
Observations	1465	1446

*Note:* Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

These results are aligned with much of the international literature from impact evaluations that do not find a change in the measures of decision-making (Attanasio and Lechene, 2010; De Brauw *et al.*, 2014; Hidrobo *et al.*, 2012). This situation could be explained by suggesting intra-household decisions need a longer time to show any clear impact which requires more extensive data collection.

**Heterogeneity:** The average effects showing statistically insignificant outcomes might be masking the heterogeneity. Although limited by the sample size of the data set, I try to assess whether the MPC transfer treatment effect is heterogeneous for female empowerment. To the best of my knowledge, these effects have not yet been explored in the literature and could be of great interest to policy where we find that the effects are not homogeneous across the Syrian refugee population in Lebanon.

I explore two types of heterogeneous treatment effects. The first is whether or not the head of household (HoH) is a female while the second is regardless of the gender, whether or not the HoH has a medical condition. It is possible for me to run this analysis because when I use either of the two as outcomes, I find insignificant and null results as seen in Appendix Table 6B. In other words, the treatment effect shows that benefiting from MPC is unlikely to differ by who the HoH is or whether they have a medical condition.

As found in Table 3 below, I split the results in subgroups because I expect the controls for the RD estimation equation to have different effects on each group. For example, I have allowed the effect of the share of disability within a household on female empowerment to be different for the HoH having a medical condition and not.

In general, the results show that the cash transfer does not have a significant impact on who takes the final decision when there is no flexibility to take one.

For the female headed households, the females are, not surprisingly, more autonomous which is validated by the average of the female empowerment index. They already have relatively more power in making decisions so that the cash

**Table 3: Regression discontinuity estimates of the heterogenous effects of MPC on female empowerment**

	Subgroup			
	Female headed household		HoH with medical condition	
	Yes	No	Yes	No
Conventional	-0.325 (0.540)	0.592*** (0.135)	-0.186 (0.478)	0.528*** (0.183)
Bias-corrected	-0.556 (0.540)	0.608*** (0.135)	-0.144 (0.478)	0.454** (0.183)
Observations	328	1118	388	1058
Mean FEI of control	0.82	-0.25	0.11	-0.04

*Note:* FEI is short for female empowerment index. Standard errors in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

transfer does not have a significant impact. However, we can see that MPC does open doors for decisions to be taken with the participation of the female counterpart in male headed households. As we see in Table 3, there is a significant increase in 0.59 standard deviations for the female empowerment index.

Similarly, for the HoH having a medical condition, I find that the cash transfer does not affect female autonomy. Not having a medical condition provides more flexibility in taking decisions which significantly empowers females to be more involved when benefiting from the MPC transfer.

## 5.2 Mental health

Three sets of results for mental health are presented in what follows. The first two are as dummy variables with 19 and 52 MHI-5 point cutoffs with 0 being poor mental health; and the third is a continuous variable scaled at 100 where the greater the number the better the mental health. In general, MPC has a positive impact on respondent's mental health.

Results for the cutoffs are reported in the first two columns of Table 2 suggesting an insignificant but positive, 5.9 and 3.2 percentage point, increase in the probability of better mental health. The scaled scoring of mental is found in the



third and fourth columns suggesting an increase in 6.8 points on the scale for better mental health, which is significantly different from zero at the 5 percent level. When I control for the covariates found in Appendix Table 2A, the result remains robust with a 6 point increase at the 10 percent significant level.

**Table 4: Regression discontinuity estimates of the impact of MPC on mental health**

	19 Cutoff	52 Cutoff	Scaled 100	
	(1)	(2)	(3)	(4)
Conventional	0.0591 (0.0493)	0.0320 (0.0597)	6.824** (3.115)	5.986* (3.064)
Bias-corrected	0.0631 (0.0493)	0.0457 (0.0597)	7.869** (3.115)	6.930** (3.064)
Observations	3077	3077	3077	3049
Covariates	No	No	No	Yes

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

The impact of MPC on mental health is more precisely estimated in the scaled model. The reason is that this scaled score uses all the information and presents the variable with more comprehension. However, a downside is that the effect of MPC is treated as linear. In other words, regardless of what level of mental health the respondent is on, the cash transfer increases the score by approximately seven points.

The average mental health score of the Syrian refugee households is below the threshold for the cutoff as found in Appendix Table 1C. Although the dummy variable provides more flexibility, a lot of information is lost explaining its insignificance. Decisively, the null result states that a simple cash transfer is not enough to push beneficiaries from a poor to a good state of mental health.

## 6 Robustness checks

In this section, I check the robustness of the impact of MPC on the scaled mental health outcome. I present a selection of extensions and robustness checks for the main analysis.

### 6.1 Falsification tests

I run a series of placebo cutoffs on my main RD model once for every \$2 away from the cut-off in the MPC score to present further evidence on the robustness of my finding. I note no significant discontinuity in MPC benefits with the estimated coefficients. As per Appendix Table 2C, coefficients that are not zero is due to noise and the sample variability. Importantly, I do not find an estimate of a discontinuity in the mental health index that is at least as big as 7 points. Hence, I can't conclude there is systematic heaping concluding robust results.

### 6.2 Adding controls

The local randomization characteristic of an RD states that whether the individual ended up above or below the cutoff, it is as good as randomly assigned. Hence, I explore the sensitivity of the results to the inclusion of the baseline covariates in Appendix Table 1C. The list of variables included as controls are the age, gender, education, marital status, and medical condition of the head of household. In addition, I control for household characteristics, mainly, the dependency ratio, number of UNHCR cases, disability share, arrival year to Lebanon, among others found in Appendix Table 2A.

Because randomization is by necessity independent of any predetermined variables, controlling for these covariates increases precision by reducing residual noise and should not affect the point estimate in an RD (Lee and Lemieux, 2010). The no-manipulation assumption of this model holds because the estimated discontinuity is unaffected which further validates the results.

### 6.3 Higher polynomials

Including a polynomial function of the MPC score relaxes the linearity assumption. An indication of a misspecified functional form would be significant changes in the estimated effect or increases in the standard errors (Lee and Lemieux, 2010). I find stable results across quadratic and cubic specifications in Appendix Table 1C which translate to high reliability and insensitivity of the results to minor changes.

### 6.4 Bandwidth selection

Appendix Table 3C shows RD estimates with varying window width for the mental health outcome scaled to 100. The specification used for this robustness check is linear with the aforementioned controls. I find that using the two different MSE-optimal bandwidth selectors for the RD treatment effect estimator or one common MSE-optimal bandwidth selector for the sum of regression (Calonico *et al.*, 2022) yields to similar results. More specifically, this finding cross-validates consistency and advises robust results.

## 7 Limitations

This paper provides key findings on the impact of cash transfers that are relevant to policy and practice in Lebanon, and beyond. However, there are a few limitations that should also be acknowledged.

First, the outcomes are generated through the self-reported survey answers that may suffer social desirability bias. This leads to the possibility of households not disclosing full accurate information out of fear that their answers may affect their eligibility for another round of assistance. Hence, there is a possible tendency to negatively aggravate their current situation.

Second, all of the respondents are female. The results for intra-household tensions, therefore, need to be interpreted with caution, as male respondents may

have answered this question differently. This is given by the fact that male respondents might not express themselves as freely as females when it comes to disclosing about mental health since it is frowned upon and tabooed in the region. The same applies to decision making, as some might see it as a threat to their masculinity and patriarchy if they were to share the power of decision making with females in the household. Any resulting bias, however, would be present in both the treatment and control groups.

Third, the decision-making aspect of the study and its results can be quite specific to the Lebanese Syrian Refugees community and their cultures. With the Middle East still being a male-dominant and patriarchal society, it is no surprise for the refugees in the country to also follow that trend. Thus, the results would only be representative of the Syrian refugee households living in Lebanon. Great care has to be taken to extrapolate from the findings to other countries and contexts. For example, Syrian refugees living in more developed countries such as Germany, might not exhibit the same gender-bias in decision-making or dominance in the household. A more gender-equal country would introduce such values into the lives of asylum seekers to ensure a healthier adaptation and social acceptance. Hence, this limits our findings to the specific population that is the Syrian refugees in Lebanon, and perhaps, the Middle East.

Lastly, while Lebanon faces a three-fold crisis, conditions today differ significantly from the time data was collected. We should be cautious of drawing conclusions regarding the anticipated impact of cash transfers today. In other words, one cannot embrace the validity of the findings given that Lebanon is undergoing an economic crisis that is changing the value and the purchasing power of the assistance Syrian refugees receive today compared to 2018 when the data was collected. The findings suggest, but do not prove, what would happen with a different amount or currency, time frame, or setting.

## 8 Conclusion

Funding for cash transfer programs has been relatively constant in the past few years. Consequently, impact evaluations of these programs have emerged as a growing area in economic research. However, little attention is paid to outcomes which the transfer is not directed towards. This paper investigates the non-financial benefit and impact of an unconditional cash transfer on female respondents of the Syrian refugee population in Lebanon. More specifically, I find that MPC has undeniable positive impacts on both female empowerment and mental health though it is not a gender-targeted transfer. This paper also looks into the heterogeneity effect of the MPC to conclude that it does not have a significant impact on who takes the final decision when there is no flexibility to take one. These are important results for future programs to take into consideration when designing their target population. For example, the transfer does not have to be specifically targeted for the female in the household to find positive impacts on their autonomy in decision making.

Although the findings are coherent with the literature, this paper contributes by providing insights on unconditional cash transfers in the unique context of the Middle East. However, there are a few limitations with the robust results. The self-reported data promotes a social desirability bias in the results. In addition, the subset of the data includes only female respondents which may differ from answers given by males. In any case, the results are interpreted with caution because of the sensitivity of the topic which differs across cultures, communities, or what external factors coming from the country's economy.

More research is required to evaluate the validity and direction of the impact of cash transfers on the understudied topic of intra-household decision making and female empowerment. Beneficiaries who are part of the program for longer durations or have been discontinued could be the right area to further investigate such mixed outcomes.

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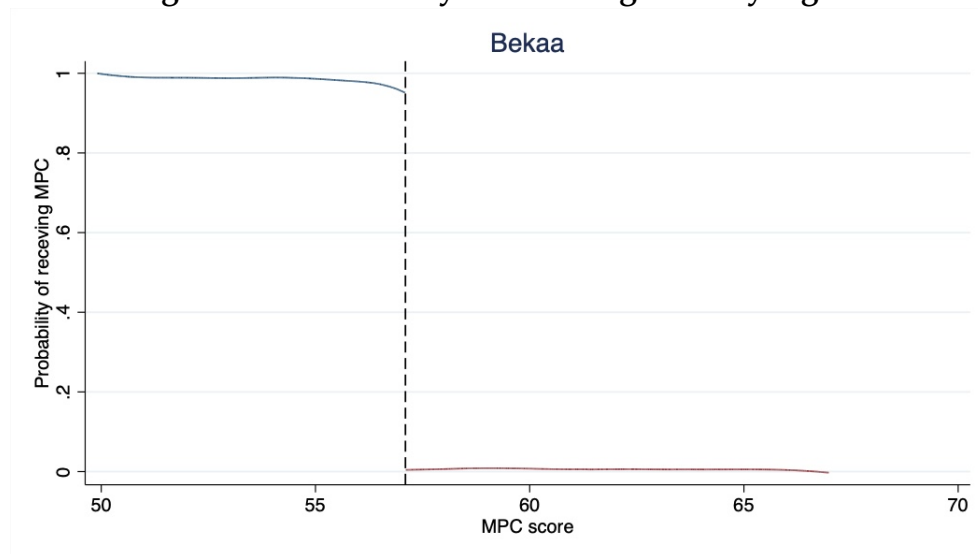
## Appendix

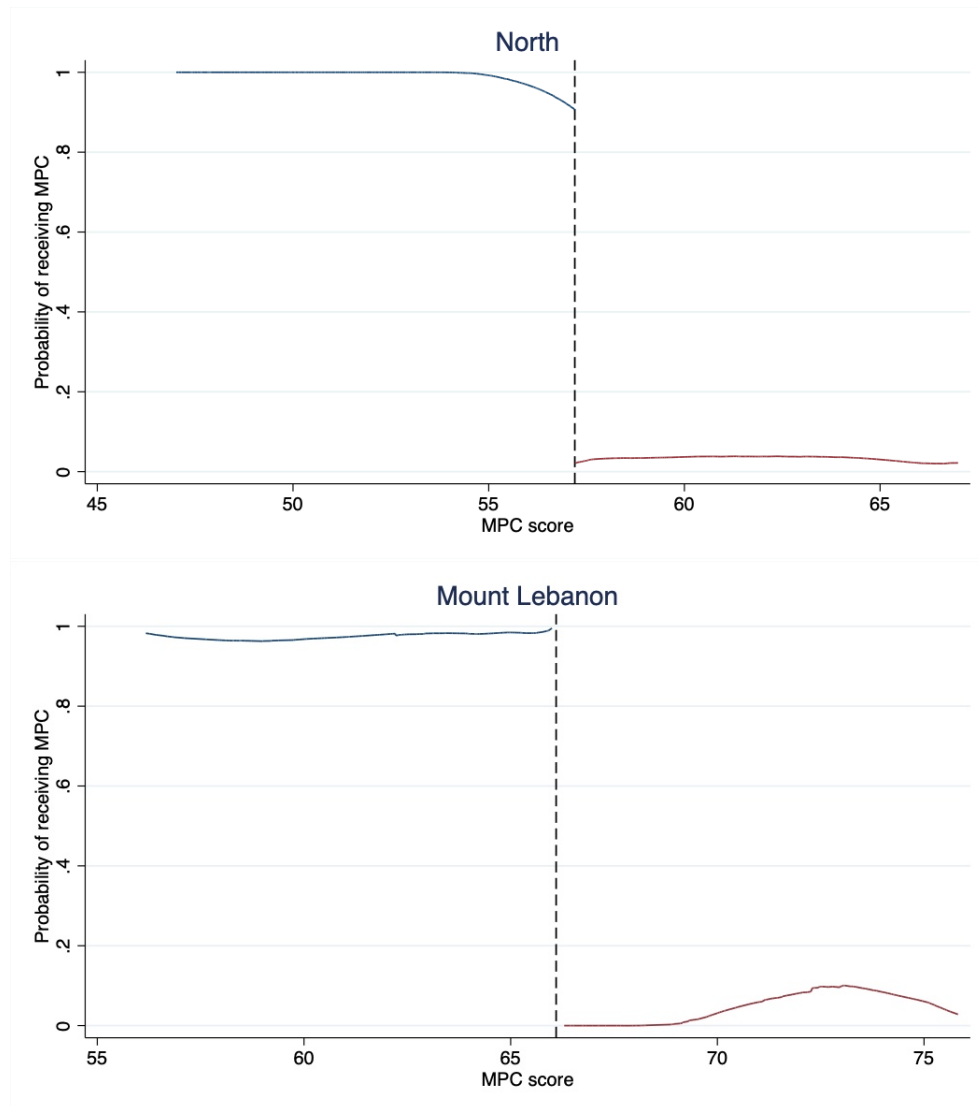
Data and summary statistics are shown in Section A. Sections B and C have the decision making and mental health outcomes respectively. Section D presents the balance checks.

Please note that the regression fit figures may be a bit misleading. I have adjusted it to match a standard RD plot. Although my treatment is up to the threshold, I have switched the sign of the score to have the observations on the left side as the control while the treated are on right side of the cutoff.

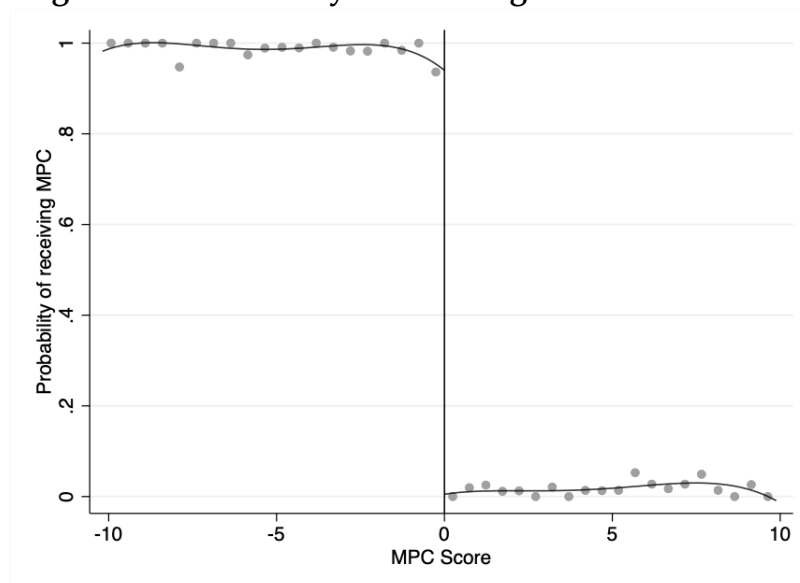
### A Data and summary statistics

Figure 1A: Probability of receiving MPC by region

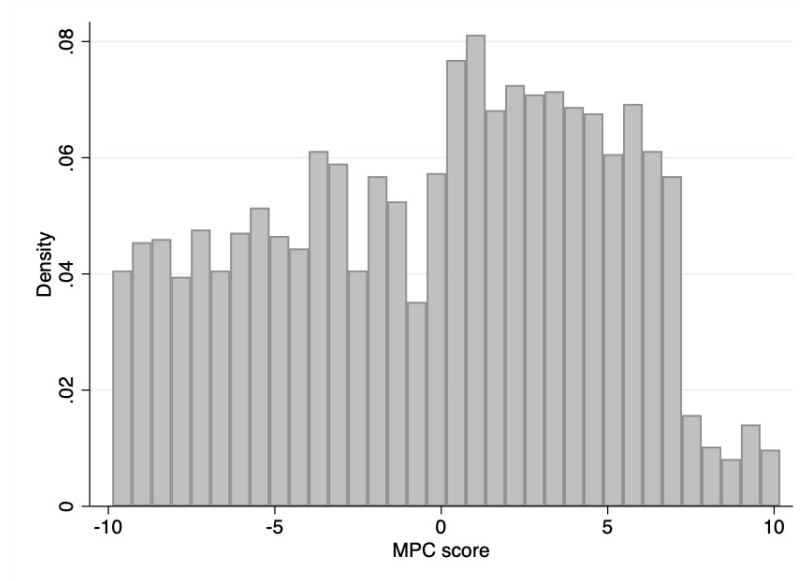




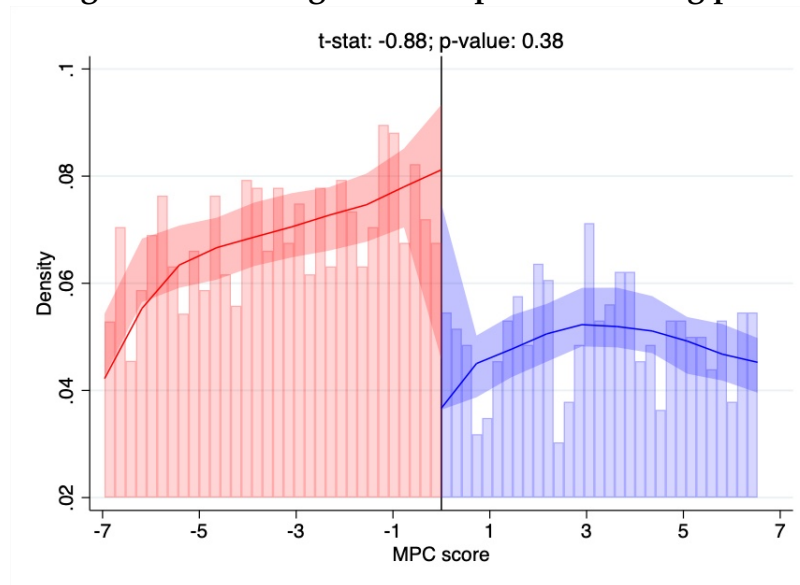
**Figure 2A: Probability of receiving MPC centered at 0**



**Figure 3A: Distribution of the assignment variable - MPC score**



**Figure 4A: Unweighted manipulation testing plot**



**Table 1A: Summary statistics of entire sample**

	Mean	SD	Min	Max	N
<i>Treatment indicators</i>					
PMT score (USD)	59.31	6.15	47	76	3132
Treatment (%)	0.41	0.49	0	1	3132
<i>HoH socio-economic indicators</i>					
HoH age (years)	40.16	10.20	18	90	3128
HoH has intermediate education	0.28	0.45	0	1	3132
Female HoH (%)	0.24	0.43	0	1	3132
Married HoH (%)	0.82	0.38	0	1	3117
<i>Household indicators</i>					
Arrival year (Year)	2013.17	1.68	1993	2017	3132
Household size (Ind)	5.72	1.80	1	16	3132
Member <5 (%)	0.20	0.20	0	1	3132
Dependence ratio (Ind)	1.46	0.94	0	7	3121
Member with disability (%)	0.03	0.09	0	1	3132
Members who never attended school (%)	0.35	0.27	0	1	3132
<i>Geographic indicators</i>					
Living in ITS (%)	0.39	0.49	0	1	3132
Bekaa (%)	0.65	0.48	0	1	3132
North (%)	0.23	0.42	0	1	3132
Mount Lebanon (%)	0.12	0.32	0	1	3132

*Note:* PMT is an acronym for proxy means testing, HoH for head of household, and ITS for informal tented settlements. Standard deviation in the parenthesis.

Table 2A: Data description for control variables

Variable	Description
<b>Characteristics of head of household (HoH):</b>	
Age	Continuous variable of the HoH's age
Intermediate	Dummy for HoH has intermediate education
Female	Dummy for female HoH
Married	Dummy for HoH married
> 60	Dummy for HoH above 60
Disabled	Dummy for HoH having a disability
MedCon	Dummy for HoH having a medical condition
<b>Characteristics of household:</b>	
Multiple cases	Dummy for whether the household includes more than one registered UNHCR case
Arrival year	Arrival year to Lebanon of the primary applicant
HH Size	Continuous variable household size
Dependency ratio	Number of individuals under 15 and above 64 divided by the number of working age members
Share < 5	Share of members who are below 5
Share 18 < 50	Share of male members who are members 18-50
Share 18 < 50	Share of female members who are members 18-50
Share 6 < 10	Share of members who are aged 6-10
Share 11 < 17	Share of members who are aged 11-17
Share > 60	Share of members who are older than 60
Disability share	Share of members who have disability
>60 MedCon	Share of members older than 60 with medical condition
No education	Share of household members with no education
> 3 dependents	Dummy for presence of more than 3 dependents in the household

## B Decision making outcomes

**Table 1B: Variable description of decision making outcomes**

Variable	Description
contra	Whether or not to use family planning such as contraceptives or birth control
daily_meals	What to prepare for daily meals
edu	The children's education
health	Where to obtain health care or advice
major_HH	Major household expenditures such as a large appliance for the house
minor_HH	Minor household expenditures such as food for daily consumption or other household needs like toiletries
visiting_ff	Visiting family/relatives or friends
women_work	Whether she should work to earn money or not and the acceptable wage

**Table 2B: Regression discontinuity estimates of the effect of MPC on females making sole or joint decisions to a high or medium extent**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	contra	daily_meals	edu	health	major_HH	minor_HH	visiting_ff	women_work
Conventional	0.00465 (0.0795)	-0.0833 (0.0631)	-0.0306 (0.0701)	-0.0504 (0.0889)	-0.00711 (0.0812)	-0.0874 (0.0839)	-0.00593 (0.0735)	0.0555 (0.0520)
Bias-corrected	-0.00832 (0.0795)	-0.102 (0.0631)	-0.0482 (0.0701)	-0.0672 (0.0889)	-0.0187 (0.0812)	-0.121 (0.0839)	-0.0131 (0.0735)	0.0597 (0.0520)
Robust	-0.00832 (0.0945)	-0.102 (0.0756)	-0.0482 (0.0811)	-0.0672 (0.105)	-0.0187 (0.0974)	-0.121 (0.0947)	-0.0131 (0.0865)	0.0597 (0.0613)
Observations	3092	3109	3105	3108	3109	3109	3109	3107

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



**Table 3B: Regression discontinuity estimates of the effect of MPC on females making sole or joint decisions to a high or medium extent with controls**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	contra	daily_meals	edu	health	major_HH	minor_HH	visiting_ff	women_work
Conventional	-0.0173 (0.0604)	-0.0987* (0.0562)	-0.0788 (0.0671)	-0.0283 (0.0740)	0.0344 (0.0712)	-0.101 (0.0744)	-0.0277 (0.0622)	0.0327 (0.0516)
Bias-corrected	-0.0191 (0.0604)	-0.107* (0.0562)	-0.101 (0.0671)	-0.0427 (0.0740)	0.0318 (0.0712)	-0.118 (0.0744)	-0.0227 (0.0622)	0.0343 (0.0516)
Robust	-0.0191 (0.0708)	-0.107 (0.0673)	-0.101 (0.0769)	-0.0427 (0.0863)	0.0318 (0.0838)	-0.118 (0.0849)	-0.0227 (0.0730)	0.0343 (0.0608)
Observations	3064	3080	3076	3079	3080	3080	3080	3078

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 4B: Regression discontinuity estimates of the effect of MPC on any level of female autonomy**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	contra	daily_meals	edu	health	major_HH	minor_HH	visiting_ff	women_work
Conventional	0.0392 (0.0610)	-0.0180 (0.0246)	0.0110 (0.0567)	-0.0158 (0.0484)	0.0187 (0.0716)	-0.000217 (0.0320)	-0.0396 (0.0544)	-0.112 (0.100)
Bias-corrected	0.0379 (0.0610)	-0.0138 (0.0246)	0.000797 (0.0567)	-0.0192 (0.0484)	0.0195 (0.0716)	0.00696 (0.0320)	-0.0505 (0.0544)	-0.123 (0.100)
Robust	0.0379 (0.0727)	-0.0138 (0.0293)	0.000797 (0.0665)	-0.0192 (0.0572)	0.0195 (0.0841)	0.00696 (0.0371)	-0.0505 (0.0639)	-0.123 (0.121)
Observations	2378	3080	2569	2853	2468	3035	3056	2353

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 5B: Regression discontinuity estimates of the effect of MPC on any level of female autonomy with controls**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	contra	daily_meals	edu	health	major_HH	minor_HH	visiting_ff	women_work
Conventional	-0.00809 (0.0616)	0.0106 (0.0336)	0.0486 (0.0566)	0.0224 (0.0531)	0.0817 (0.0766)	0.00590 (0.0346)	-0.0152 (0.0565)	-0.0454 (0.0854)
Bias-corrected	-0.0121 (0.0616)	0.0219 (0.0336)	0.0521 (0.0566)	0.0313 (0.0531)	0.105 (0.0766)	0.0197 (0.0346)	-0.0150 (0.0565)	-0.0506 (0.0854)
Robust	-0.0121 (0.0722)	0.0219 (0.0396)	0.0521 (0.0667)	0.0313 (0.0622)	0.105 (0.0883)	0.0197 (0.0383)	-0.0150 (0.0679)	-0.0506 (0.102)
Observations	2372	3051	2549	2826	2440	3006	3029	2328

Standard errors in parentheses

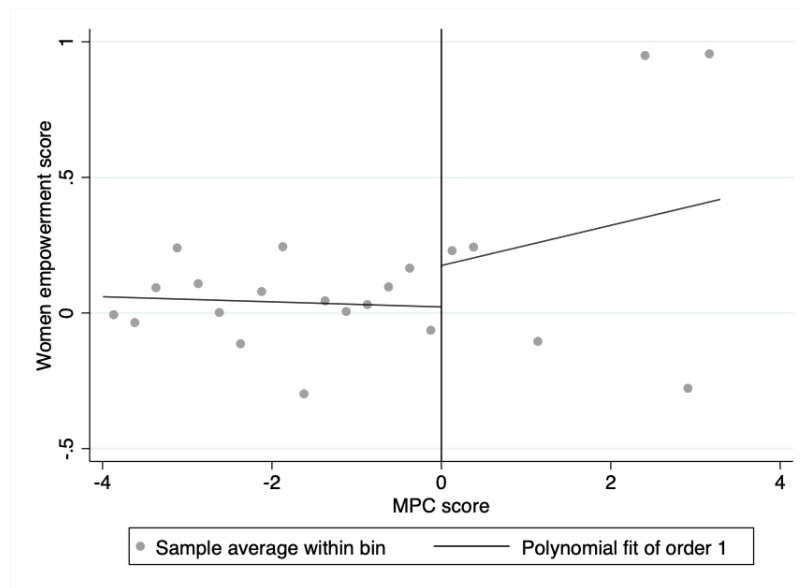
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 6B: Impact of MPC on the variables for heterogenous effect**

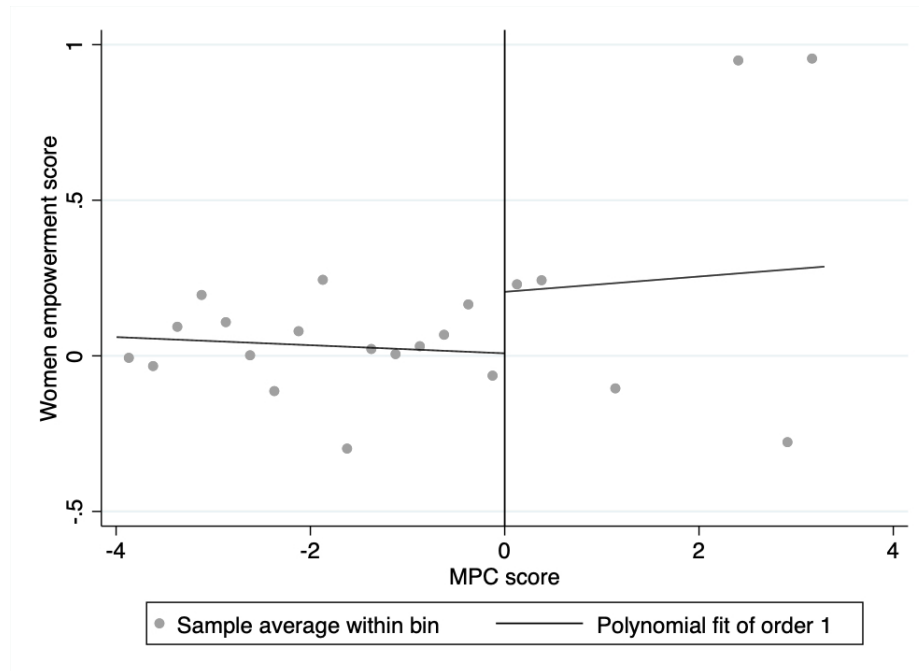
	(1) Female HoH	(2) HoH has MedCon
Conventional	-0.0206 (0.0368)	0.0000 0.0000
Bias-corrected	-0.0238 (0.0368)	0.0000 0.0000
Robust	-0.0238 (0.0437)	0.0000 0.0000
Observations	3103	3103

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Figure 1B: Linear regression function fit for the women empowerment index**

**Figure 2B: Linear regression function fit for the  
women empowerment index with controls**



## C Mental health outcomes

**Table 1C: Regression discontinuity estimates of the effect of MPC on mental health**

	19 Cutoff		52 Cutoff		Scaled 100	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Mean of dependent variable</i>						
	0.1592		0.2196		39.2369	
<i>Linear</i>						
Conventional	0.0591 (0.0493)	0.0501 (0.0450)	0.0320 (0.0597)	0.0170 (0.0578)	6.824** (3.115)	5.986* (3.064)
Bias-corrected	0.0631 (0.0493)	0.0567 (0.0450)	0.0457 (0.0597)	0.0284 (0.0578)	7.869** (3.115)	6.930** (3.064)
Robust	0.0631 (0.0574)	0.0567 (0.0522)	0.0457 (0.0686)	0.0284 (0.0664)	7.869** (3.555)	6.930** (3.512)
<i>Quadratic</i>						
Conventional	0.0537 (0.0586)	0.0408 (0.0568)	0.0466 (0.0714)	0.0283 (0.0771)	8.484** (4.131)	8.281** (4.088)
Bias-corrected	0.0597 (0.0586)	0.0519 (0.0568)	0.0506 (0.0714)	0.0146 (0.0771)	8.800** (4.131)	8.480** (4.088)
Robust	0.0597 (0.0654)	0.0519 (0.0629)	0.0506 (0.0799)	0.0146 (0.0828)	8.800* (4.781)	8.480* (4.762)
<i>Cubic</i>						
Conventional	0.0312 (0.0709)	0.0178 (0.0717)	-0.00870 (0.0895)	0.00910 (0.0849)	8.237* (4.710)	6.048 (4.823)
Bias-corrected	0.0381 (0.0709)	0.0311 (0.0717)	0.00584 (0.0895)	-0.0111 (0.0849)	7.393 (4.710)	5.464 (4.823)
Robust	0.0381 (0.0782)	0.0311 (0.0788)	0.00584 (0.0968)	-0.0111 (0.0902)	7.393 (5.450)	5.464 (5.538)
Covariates	No	Yes	No	Yes	No	Yes
Observations	3077	3049	3077	3049	3077	3049

Note: Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

Figure 1C: Linear regression function fit for MHI score scaled at 100 with controls

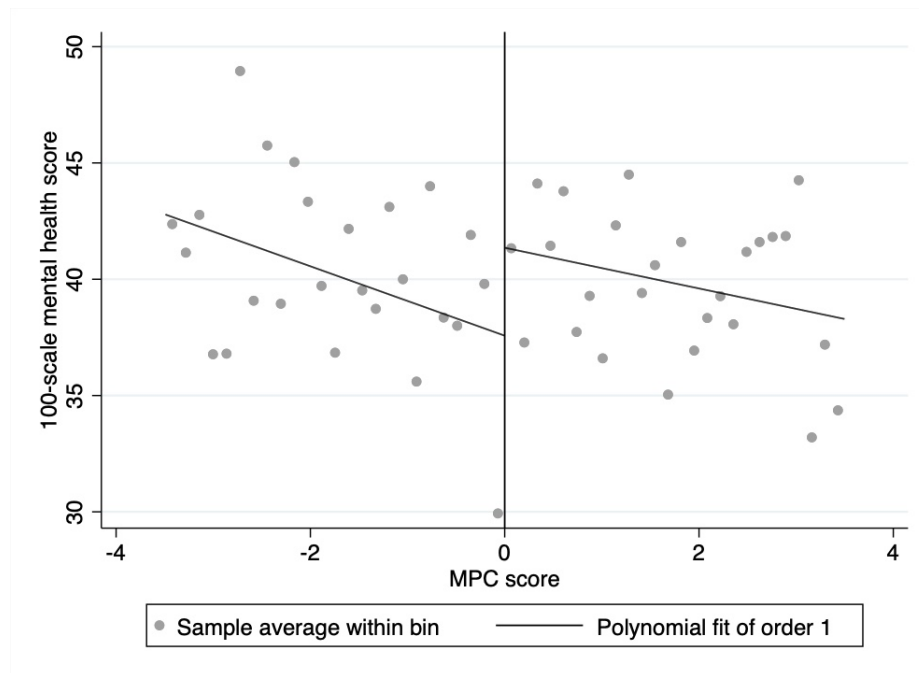


Figure 2C: Quadratic regression function fit for MHI score scaled at 100 with controls

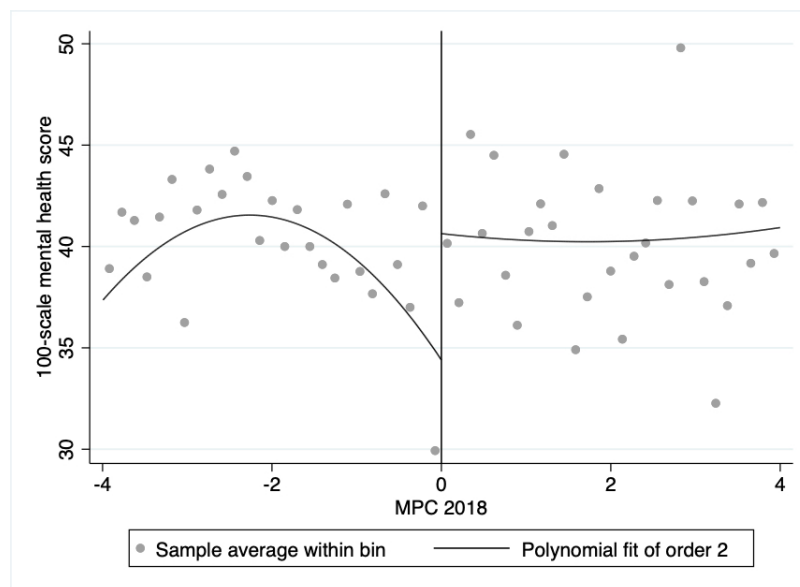


Figure 3C: Cubic regression function fit for MHI score scaled at 100 with controls

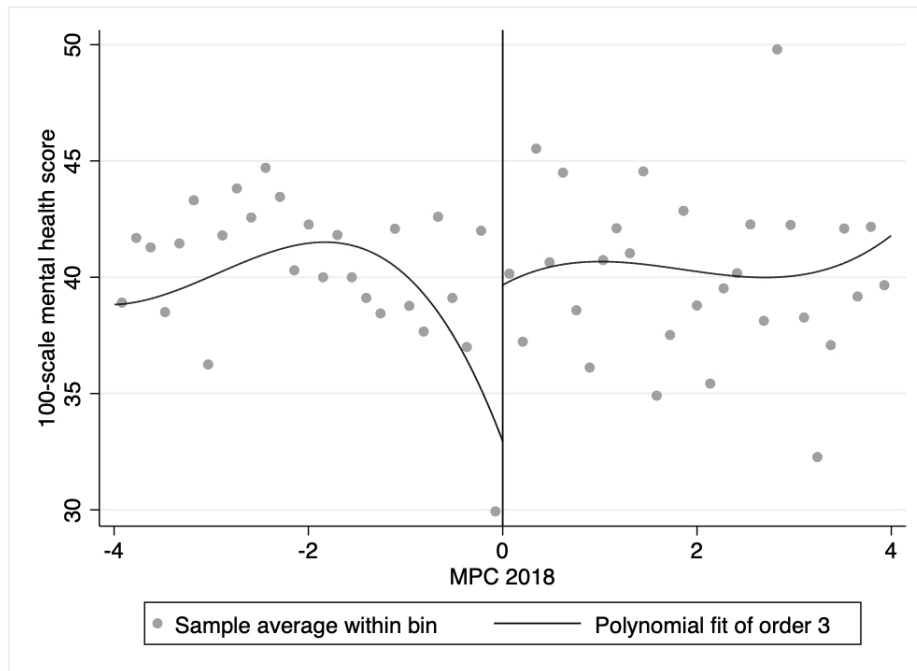


Figure 4C: Linear regression function fit for MHI-5 with 19 cutoff and controls

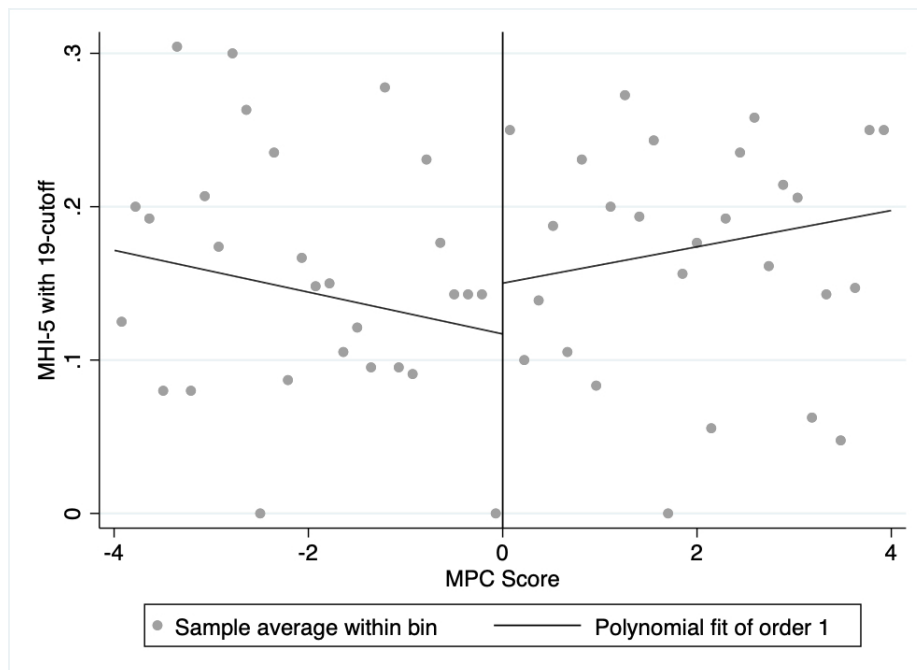




Figure 5C: Quadratic regression function fit for MHI-5 with 19 cutoff and controls

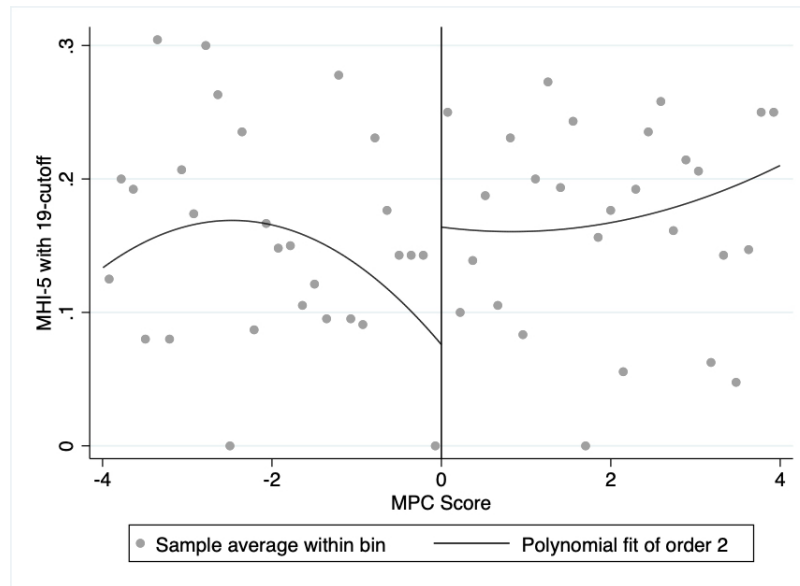


Figure 6C: Cubic regression function fit for MHI-5 with 19 cutoff and controls

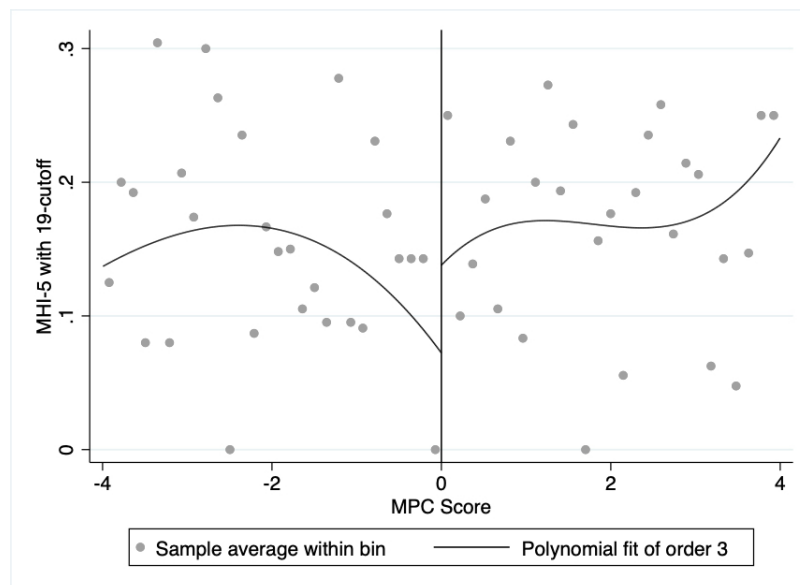


Figure 7C: Linear regression function fit for MHI-5 with 52 cutoff and controls

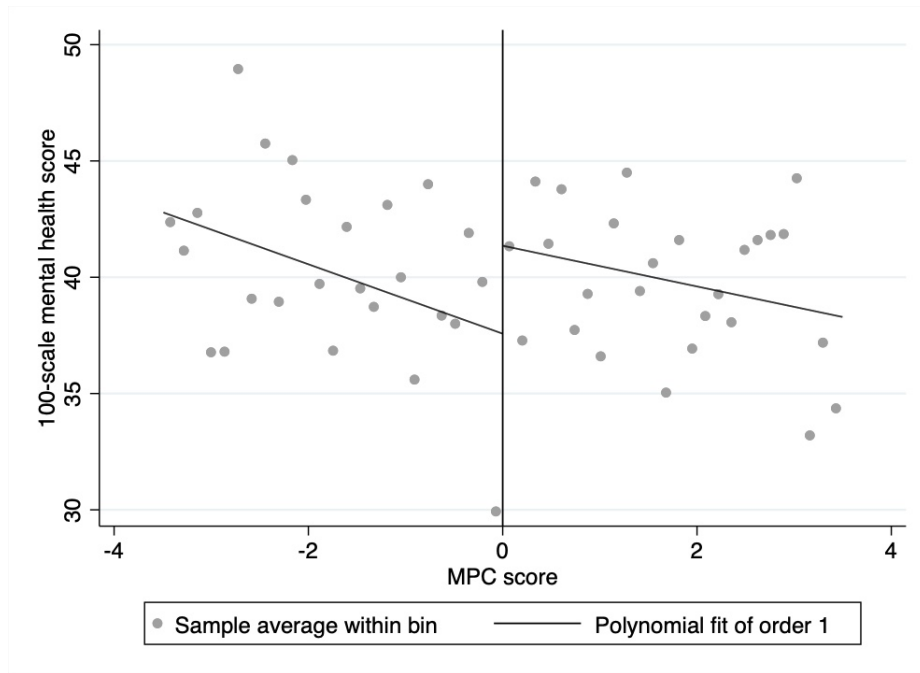


Figure 8C: Quadratic regression function fit for MHI-5 with 52 cutoff and controls

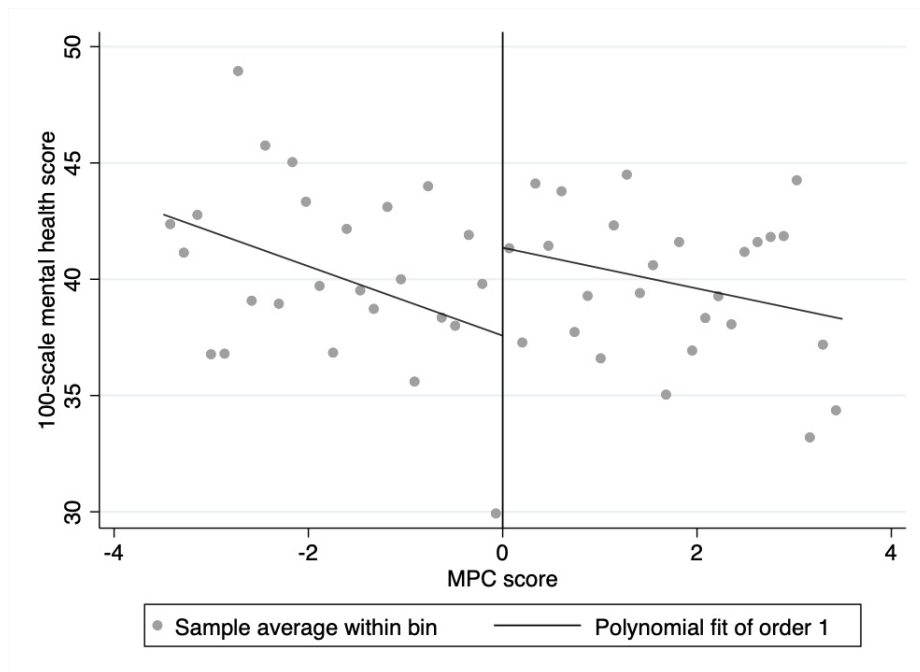


Figure 9C: Cubic regression function fit for MHI-5 with 52 cutoff and controls

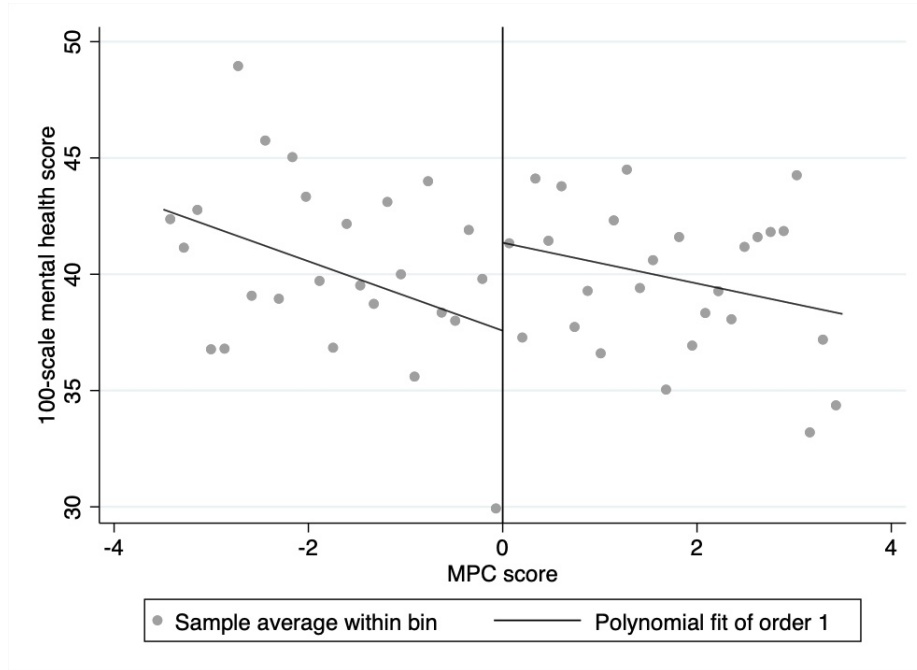


Table 2C: Impact of MPC on mental health scaled at 100 using placebo cutoffs

	(1)	(2)	(3)	(4)	(5)	(6)
Mental health outcome	Cutoff+2	Cutoff-2	Cutoff+4	Cutoff+4	Cutoff+6	Cutoff-6
Conventional	0.246 (2.839)	-3.696 (2.853)	0.175 (3.688)	1.507 (3.553)	-2.104 (4.726)	2.215 (4.046)
Bias-corrected	-0.100 (2.839)	-4.210 (2.853)	-0.503 (3.688)	1.439 (3.553)	-3.408 (4.726)	2.087 (4.046)
Robust	-0.100 (3.356)	-4.210 (3.337)	-0.503 (4.292)	1.439 (4.224)	-3.408 (5.863)	2.087 (4.840)
Observations	3077	3077	3077	3077	3077	3077

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 3C: Impact of MPC on mental health scaled at 100 with controls using different bandwidths**

Using	(1) mserd	(2) msetwo	(3) msesum
Conventional	5.986* (3.064)	5.181 (3.209)	5.337 (3.401)
Bias-corrected	6.930** (3.064)	5.768* (3.209)	5.823* (3.401)
Robust	6.930** (3.512)	5.768 (3.679)	5.823 (3.901)
Observations	3049	3049	3049

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ 

**Note:** As per Calonico *et al.* (2022), "mserd", which is used for the main analysis, is a one common MSE-optimal bandwidth selector for the RD treatment effect estimator.

"msetwo" is two different MSE-optimal bandwidth selectors (below and above the cutoff) for the RD treatment effect estimator, while "msesum" is one common MSE-optimal bandwidth selector for the sum of regression estimates (as opposed to difference thereof).

## D Balance checks

To find a more comprehensive definition of the variable, please check Appendix Table 2A. The shaded regions of the figures are 95% confidence intervals. Note that scores below the cutoff are treated; i.e receive cash transfer, while those above are the control group.

